

DOCUMENT A00804

STRUCTURES INSPECTION FIELD REPORT

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STRUCTURES INSPECTION FIELD REPORT

BR. DEPT. NO.

B-16-053

2-DIST

06

B.I.N.

4T3

ROUTINE INSPECTION

CITY/TOWN BOSTON		8-STRUCTURE NO. B16053-4T3-DOT-NBI		11-Kilo. POINT 212.910	41-STATUS A:OPEN	90-ROUTINE INSP. DATE MAR 30, 2022
07-FACILITY CARRIED HWY BROOKLINE AV		MEMORIAL NAME/LOCAL NAME David Ortiz "Big Papi" Bridge		27-YR BUILT 1965	106-YR REBUILT 1998	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED COMB I 90 & MBTA/CSX		26-FUNCTIONAL CLASS Urban Arterial		DIST. BRIDGE INSPECTION ENGINEER J. O'Connor		
43-STRUCTURE TYPE 302 : Steel Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER M. Tetreault		
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER Clear	TEMP. (air) 5°C	TEAM MEMBERS M. HAILU, M. ZEROUAL		

ITEM 58 DECK <table border="1"> <tr> <td>1. Wearing surface</td> <td>6</td> <td>M-P</td> </tr> <tr> <td>2. Deck Condition</td> <td>7</td> <td>M-P</td> </tr> <tr> <td>3. Stay-in-Place Forms</td> <td>7</td> <td>M-P</td> </tr> <tr> <td>4. Curbs</td> <td>7</td> <td>M-P</td> </tr> <tr> <td>5. Median</td> <td>N</td> <td>-</td> </tr> <tr> <td>6. Sidewalks</td> <td>6</td> <td>M-P</td> </tr> <tr> <td>7. Parapets</td> <td>N</td> <td>-</td> </tr> <tr> <td>8. Railing</td> <td>7</td> <td>M-P</td> </tr> <tr> <td>9. Anti Missile Fence</td> <td>6</td> <td>M-P</td> </tr> <tr> <td>10. Drainage System</td> <td>5</td> <td>M-P</td> </tr> <tr> <td>11. Lighting Standards</td> <td>7</td> <td>M-P</td> </tr> <tr> <td>12. Utilities</td> <td>5</td> <td>S-P</td> </tr> <tr> <td>13. Deck Joints</td> <td>6</td> <td>M-P</td> </tr> <tr> <td>14. Shielding</td> <td>7</td> <td>-</td> </tr> <tr> <td>15. Stairs</td> <td>8</td> <td>-</td> </tr> <tr> <td>16. Eruv</td> <td>8</td> <td>-</td> </tr> </table>			1. 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X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN BOSTON	B.I.N. 4T3	BR. DEPT. NO. B-16-053	8.-STRUCTURE NO. B16053-4T3-DOT-NBI	INSPECTION DATE MAR 30, 2022
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ITEM 61
CHANNEL & CHANNEL PROTECTION

	Dive	Cur	DEF
1.Channel Scour	N	N	-
2.Embankment Erosion	N	N	-
3.Debris	N	N	-
4.Vegetation	N	N	-
5.Utilities	N	N	-
6.Rip-Rap/Slope Protection	N	N	-
7.Aggradation	N	N	-
8.Fender System	N	N	-

STREAM FLOW VELOCITY:
Tidal () High () Moderate () Low () None ()

ITEM 61 (Dive Report): ☐ **ITEM 61 (This Report):** ☐

93b-U/W INSP. DATE:

ITEM 36 TRAFFIC SAFETY

	36	COND	DEF
A. Bridge Railing	0	7	M-P
B. Transitions	0	0	S-A
C. Approach Guardrail	0	0	S-A
D. Approach Guardrail Ends	0	0	S-A

WEIGHT POSTING Not Applicable ☒

	H	3	3S2	Single
Actual Posting	N	N	N	N
Recommended Posting	N	N	N	N

Waived Date: **EJDMT Date:**

At bridge		Other Advance	
N	S	N	S
N	S	N	S

Signs In Place
(Y=Yes, N=No, NR=Not Required)
Legibility/Visibility

At bridge		Advance	
E	W	E	W
E	W	E	W

ACCESSIBILITY (Y/N/P)

	Needed	Used
Lift Bucket	Y	Y
Ladder	Y	Y
Boat	N	N
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	N	N
Traffic Control	Y	Y
RR Flagger	Y	Y
Police	Y	Y
Other:		
	N	N

TOTAL HOURS 48

PLANS (Y/N): ☐ **Y**

(V.C.R.) (Y/N): ☐ **N**

TAPE#:

List of field tests performed:
Visual and Hands On Inspections

RATING

Rating Report (Y/N): ☐ **Y**
Date:
Inspection data at time of existing rating
I 58: 7 I 59: 6 I 60: 5 Date :03/03/2014

Recommend for Rating or Rerating (Y/N): ☐ **N**
REASON:

If YES please give priority:
HIGH () MEDIUM () LOW ()

CONDITION RATING GUIDE (For Items 58, 59, 60 and 61)

	CODE	CONDITION	DEFECTS
	N	NOT APPLICABLE	
G	9	EXCELLENT	Excellent condition.
G	8	VERY GOOD	No problem noted.
G	7	GOOD	Some minor problems.
F	6	SATISFACTORY	Structural elements show some minor deterioration.
F	5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P	4	POOR	Advanced section loss, deterioration, spalling or scour.
P	3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C	2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C	1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
	0	FAILED	Out of service - beyond corrective action.

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:
M= Minor Deficiency Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.
S= Severe/Major Deficiency Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.
C-S= Critical Structural Deficiency A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.
C-H= Critical Hazard Deficiency A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

URGENCY OF REPAIR:
I = Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].
A = ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].
P = Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

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REMARKS

BRIDGE ORIENTATION

Bridge B-16-053 (BIN 4T3), originally named MTA Structure No. 51, is a three-span multi-beam structure that carries Brookline Avenue in a North/South direction over I-90 and the MBTA/Amtrak railroad tracks. **See Sketch #1.**

BIN 4T3 is located east of BIN A06, the Brookline Avenue Utility Bridge. The spans are numbered from south to north (Span #1 is over the railroad, Span #2 is over the I-90 Eastbound, and Span #3 is over I-90 Westbound). The spans are composed of nine steel girders, numbered one through nine from west to east for each span. Original plans number the beams continuously, over spans (Span #1 = Beams 1-9, Span #2 = Beams 10-18, Span #3 = Beams 19-27). **See Sketch #2.** Interior diaphragms are numbered from south to north in each bay in all three spans. Piers are numbered from south to north.

GENERAL REMARKS

Construction Note:

The west sidewalk and approach sidewalks were closed to pedestrian traffic during this inspection due to the ongoing construction at parcel 12. The utilities at the adjacent utility structure B-16-053 (A06) are being transferred to this bridge as part of the construction project.

ITEM 58 - DECK

Item 58.1 - Wearing surface

At the south edge of the concrete there is minor spalling in both roadways. At pier #1 there is minor scaling and spalling in spans #1 and #2.

Southbound Roadway

In all three spans there is a hairline to light longitudinal crack 1-1/2' from the center of roadway. In span #1 there is moderate spalling, 3'L x 8"W x 2"D with the concrete breaking up by the center of roadway at pier #1. **See Photo #1.** In span #2 there is a moderate transverse crack, 10' from the west curb, at pier #1. There is a concrete spill in span #2, almost full-length. There is minor spalling adjacent to the west curb at the north abutment.

Northbound Roadway

Above pier #1 by the east curb, there is a heavy spall at the joint, 5'L X 1'W X 3"D. **See Photo #2.** In span #2 by pier #2 and in span #3 at pier #2 there are minor spalls by the center of roadway.

Item 58.2 - Deck Condition

Bays #4 and #8 are exposed concrete in all three spans. There are numerous hairline transverse cracks with minor efflorescence throughout in bay #8 in all three spans. **See Photo #3.** In bay #4 there are numerous hairline transverse cracks with minor efflorescence in spans #2 and #3.

There is form work left in place behind the end diaphragms at piers #1 and #2 and in bay #7 behind the end diaphragm at the north abutment.

In span #1 there is a hairline diagonal crack with efflorescence in bay #8 by the south abutment.

The exposed deck outside beam #1 has a few hairline vertical cracks in span #1, as well as outside beam #27 in span #3.

Item 58.3 - Stay-in-Place Forms

The SIP forms have a pocket of moderate rusting adjacent to beam #3 at the south abutment in span #1. There is moderate rusting at the edges of the SIP forms in span #2 by pier #1. In spans #2 and #3 there is random minor to moderate rusting of the SIP forms, primarily at the edges. **See Photo #4.**

Item 58.4 - Curbs

Typically, the granite curbs have minor chipped corners and scrapes throughout.

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REMARKS

The west curb at sections #2 and #3 from the south have diagonal through cracks. At pier #1 there is a small section of granite curb missing. **See Photo #5.**

Item 58.6 - Sidewalks

West Sidewalk

There are concrete patches at the north abutment, over pier #1, and in span #1.

There is a new concrete patch in span #1 at pier #1 adjacent to the west curb. **See Photo #5.**

There is minor scaling, broken concrete, and cracking in numerous locations behind the curbing. At the 1' closest to the scaling there are numerous hairline cracks in the concrete.

There is large bituminous patching and ramping at the north abutment.

East Sidewalk

At the south abutment deck joint there is a 2'-2" long section of the filler material missing with adjacent adhesion failure to the existing filler. **See Photo #6.** There is minor scaling inside the curbing and hairline to light diagonal cracks by the south abutment.

At the east curb over pier #1, there is a new concrete patch in the sidewalk. **See Photo #7.**

At the east end above pier #1, a 7'L section of joint filler is missing.

At pier #2, there is a missing 3'-6"L section of joint filler. There is also minor scaling in span #3.

In span #3 there are hairline diagonal cracks by pier #2.

In span #3 there is one random hairline transverse crack.

At the north abutment the filler at the deck joint is missing, 10' long. **See Photo #8.**

Item 58.8 - Railing

West Railing

There are small areas of damage to the top rails in panels #1, #5, and #7.

East Railing

There is a puncture (3-1/2" long) in the top rail at post #4. **See Photo #9.**

Item 58.9 - Anti Missile Fence

There are numerous end caps missing at both anti-missile fences. The paint is peeling in numerous locations at both anti-missile fences.

West Anti-missile Fence

Above the southwest and northwest endposts the top rail is missing and the mesh is loose.

East Anti-Missile Fence

There is a hole in the fabric just north of post #24. **See Photo #10.**

Item 58.10 - Drainage System

The south abutment has a trough along the back of the bridge seat and four steel scuppers that are heavily corroded. The west most and east most scuppers are completely corroded through.

Item 58.11 - Lighting Standards

There is one lighting standard on the west railing in span #2. There is freckled rust on the pole. It has a very dirty lens.

Item 58.12 - Utilities

There is a concrete encased utility duct bank in bay #7 in all three spans.

Span #1

At the south abutment there is moderate spalling with exposed rusted rebar on the bottom face. The west face has a heavy vertical crack with adjacent delamination 10' out from the south abutment. **See Photos #11**

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REMARKS

and #12. There is moderate to heavy spalling with exposed rusted rebar on the west face at pier #1. **See Photo #13.**

Span #2

There is new timber shielding in place throughout the entire span. **See Photo #14.** There is moderate to heavy spalling with exposed rusted rebar at the bottom corner of the west face and bottom face at pier #1. At the top of the west face there is moderate to heavy spalling with exposed rusted rebar at pier #1. Above the right travel lanes there is moderate to heavy spalling with exposed rusted rebar on the west face at the top. On the east face there is also light to moderate cracking. There is heavy spalling with exposed rusted rebar at the top face and west face at pier #2. On the east face, above the second and third lane skip lines, there is a moderate spall with exposed rusted rebar. On the east face at the top and bottom corners south of pier #2, there is moderate to heavy spalling with exposed rusted rebar.

Span #3

There is moderate spalling with exposed rusted rebar at the bottom west corner at pier #2. At pier #2 there is moderate to heavy spalling with exposed rusted rebar at the top corner of the west face. **See Photo #15.** On the east face, there are numerous hairline to light horizontal cracks at the top, moderate spalling with exposed rusted rebar at the bottom north of pier #2. On the bottom face there is light cracking and delamination at pier #2. Above the right two travel lanes there is a light horizontal crack and hollow concrete at the top of the east face. Above timber shielding at the north abutment, there is heavy spalling with exposed rebar and exposed conduit with some areas of 100% section loss on the west and east faces.

Item 58.13 - Deck Joints

South Abutment

There is bituminous patching at the asphaltic plug joint in the northbound roadway. The patching has minor full width transverse cracking. In the southbound roadway the plug joint has settled up to 1" at the 10' closest to the west curb. There is light cracking in bituminous patching in a 7' long area in the southbound roadway. The north joint is up to 1" higher than the south at the east sidewalk.

Pier #1

The joint filler material is missing or loose in several locations in the northbound roadway and east sidewalk.

Pier #2

There is form work left in place directly below the deck joint at pier #2.

North Abutment

The asphaltic plug joint is worn with light cracking and separation, minor spalls, and minor settlement adjacent to the bridge deck. By the east curb the plug joint has shoving up to 3-1/2" high. The joint material is falling through in bay #8 on the underside of the deck joint.

Item 58.14 - Shielding

There is tongue and groove timber shielding in bay #7 in span #2 and in span #3 by the north abutment.

Item 58.15 - Stairs

There are stairs on the east half of the southwest approach sidewalk just off the south abutment.

Item 58.16 - Eruv

The eruv (a thin chord) at the North Abutment is in very good condition.

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REMARKS

APPROACHES

Approaches a - Appr. pavement condition

The north approach has a bituminous patched trench in the northbound roadway. **See Photo #16.**

Approaches c - Appr. Sidewalk Settlement

The southeast approach sidewalk has 1/4" settlement adjacent to the bridge sidewalk and the curb is displaced up to 1" toward the road at the joint. There is minor scaling at the north end of the first slab. There is also a full-width x 7"L bituminous patch at the light standard, which extends north between the lighting standard and the curb. The northeast approach sidewalk has minor scaling inside the curbing. The concrete is heaved up to 1" in the first slab adjacent to the curb. There are numerous patches throughout (trench work).

The northwest and southwest approach sidewalks are closed to pedestrian traffic due to ongoing construction at parcel 12. **See Photos #17 and #18.**

ITEM 59 - SUPERSTRUCTURE

Item 59.4 - Girders or Beams

There is minor to moderate rusting where paint has peeled at beams. There is moderate rusting to the bottom flanges of the beams at the south abutment.

Stiffeners at pier #1 typically have rusting, minor lamination, and minor section loss (down to 1/8" remaining thickness) to the bottom.

The west vertical stiffener for beam #2 at pier #1 has a 1-1/4"W x 2-1/2"H area of 100% section loss at the bottom. **See Photo #19.**

There is minor to moderate rusting and lamination to the bottom flanges of the beams at pier #1, in span #1. There is a concrete over pour on the west leg of the bottom flanges of beams #20 through #24 in span #3 at the north abutment.

The beams at the north abutment typically have light surface rust at the top of the web and top flange at the beam ends. No section loss.

Item 59.7 - Conn Plt's, Gussets & Angles

There is rusting where the paint has peeled at connection plates. At pier #1 the small connection plate at the top of the web at beam #2 east face (span #1) and at beam #11 east face (span #2) has an area of 100% section loss. At pier #1, bay #6, in span #1, the connection plates have lamination throughout with minor section losses.

Item 59.8 - Cover Plates

There is rusting of the steel where the paint has peeled away on the bottom cover plates in spans #2 and #3. There are no cover plates in span #1.

Item 59.9 - Bearing Devices

South Abutment

There is moderate rusting and minor pack rust at the bearings.

Pier #1

There is moderate to heavy rusting and minor to moderate pack rust of the bearings. **See Photo #20.**

Beams #1 - #9 are typically shifted 1/2" to 1" to the south.

There is concrete debris (from repair work at pier) hardened onto the bearings at beam #2 through #4 and at beams #6 through #8 in span #1 (and adjacent bearings #11 through #13 and #15 through #17 of span #2).

There is heavy efflorescence on the beam #2 bearing in span #1.

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REMARKS

In span #1 beam #6 is tilted 1"+ to the south.
Beam #10 is tilted 1"+/- to the north in span #2. **See Photo #21.**

Beam #12 is tilted 1/2" to the north in span #2.

Pier #2
There is moderate rusting of the masonry plates at the bearings, there is light random rusting throughout the rest of the bearing components.

North Abutment
There is minor rusting of the bearings.

Item 59.10 - Diaphragms/Cross Frames
The diaphragms typically have scattered light surface rust throughout. The end diaphragms typically have light rust and flaking paint with no section loss. At pier #2, the inside faces of the diaphragms have moderate rusting throughout.

Item 59.11 - Rivets & Bolts
There is minor surface rust around several bolts with freckled and peeling paint intermittently throughout.

Item 59.12 - Welds
There is minor surface rust scattered along the welds, mainly near connections, with freckled and peeling paint intermittently throughout.

Item 59.14 - Paint/Coating
There is freckled and peeling paint throughout with heavier paint loss towards the bearings, with paint losses most prevalent along the top and bottom flanges and lower portion of webs. In span #1 there is peeling of the paint at beam webs and interior diaphragms with rusting of the exposed steel. In span #1, there is heavy paint loss, up to full-height in the webs, in random areas throughout. In span #2 beam #18 bottom flange east leg has peeling paint on the top face above the right two travel lanes.

SuperStructure Load Deflection Notes
There is minor deflection under heavy live load.

SuperStructure Load Vibration Notes
There is minor load vibration under heavy live load.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments
Item 60.1.a - Pedestals
There are concrete pedestals below the bearings at both abutments.

South Abutment
There are light vertical cracks at several pedestals.

North Abutment
There is minor to moderate spalling with slight undermining on the east face below beam #19. **See Photo #22.**
Below beam #21 there is light vertical cracking on the east face.
There is a moderate spall on the east face below beam #26.
Below most beams there are light vertical cracks in the pedestals.

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REMARKS

Item 60.1.b - Bridge Seats

South Bridge Seat

There is a heavy build-up of debris between beams #2 and #4. At the west end there is vegetation.

North Bridge Seat

There is minor cracking and spalling.

Item 60.1.c - Backwalls

South Backwall

There are random hairline vertical cracks and minor efflorescence throughout.

Active leakage between beams #6 through #8.

Moderate efflorescence in bay #7.

North Backwall

At the west end there is a spall, with exposed rusted rebar, at the bottom.

Outside beam #19 there is a minor spall (no rebar) at the top.

There are two moderate spalls with exposed rusted rebar between beams #19 and #20. **See Photo #23.**

Between beams #23 and #24 there is minor spalling and delamination.

Behind beam #25 there is moderate spalling with exposed rusted rebar and moderate delamination.

There is a hairline to light diagonal crack behind beam #26.

Between beams #26 and #27 there is minor spalling and delamination at mid-height.

Behind beam #27 there is minor spalling at the bottom.

Item 60.1.d - Breastwalls

South Breastwall

There is a concrete cap atop granite blocks. Below scuppers there are minor hollow areas with rust staining.

Between beams #1 and #4 there is hairline cracking and minor rust spots in the cap.

Between beams #3 and #4 there is a minor spall in the cap with minor horizontal and diagonal cracking.

There is moderate horizontal cracking, hollow concrete, and minor spalling with exposed rusted rebar between beams #5 and #6. **See Photo #24.**

There is a hairline horizontal crack at the top between beams #8 and #9.

North Breastwall

There are previous repairs throughout (approximately 75% of the breastwall).

Below beam #20 there is a small area of hollow concrete in the original concrete at the bottom.

From beam #24 to just east of beam #26, there is full-height map cracking.

Outside beam #27 there is a small area of hollow concrete and minor delamination in the original concrete at the bottom.

Five feet above the safetywalk there is hollow concrete in an area 3'-6"H x 2'-9"W in the original concrete outside beam #27.

Item 60.1.g - Pointing

There is minor to moderate deterioration of the mortar joints between the granite blocks at the south breastwall. The average penetration into the open joints is 3" with isolated penetrations up to 6".

Item 60.2 - Piers or Bents

Item 60.2.a - Pedestals

There are concrete pedestals below the bearings at the piers.

Pier #1

Span #1

There is minor delamination at the southeast corner below beam #1.

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REMARKS

Below beam #9 there is minor spalling at the southeast corner.

Span #2
There is hollow concrete at most pedestals.

Pier #2
Span #3
There are several hairline vertical cracks at beams #19 and #27 at pier #2.

Item 60.2.b - Caps
Pier #1
South Face
Below beam #1, minor spalling and delamination.
Between beams #1 and #2, moderate to heavy horizontal cracking, delamination, rust staining, and hollow concrete at the top.
Below beam #2, moderate full-height spalling with exposed rusted rebar and adjacent delamination. **See Photo #25.**
Between beams #2 and #4, moderate to heavy spalling with exposed rusted rebar at the top corner with hairline cracking, delamination, and hollow concrete below the spalled area. **See Photo #25.**
Between beams #4 and #9, moderate horizontal cracking, delamination, and hollow concrete at the top. **See Photo #26.**
Between beams #6 and #7, hairline horizontal crack with minor rust staining at the bottom.

North Face
There are previous repairs throughout.
Between beams #12 and #13 and between beams #15 and #16, minor rust spots in the original concrete.
Between beams #13 and #14, light horizontal crack with hollow concrete at the bottom.
Below beam #14 there is hollow concrete at the top.

Bottom Face
There are numerous minor rust spots at the west and east ends.

Top Face
Between beams #1 and #2, light cracking at the south edge.

Pier #2
There are numerous previous repairs throughout. There are numerous hairline vertical cracks in the repairs.

South Face
Between beams #11 and #12, minor delamination at the top.
Between beams #12 and #13, hairline horizontal crack at the top.
Below beam #15, hairline to light horizontal cracking at the top.
Below beam #17, full-height vertical hairline crack.

North Face
Below beam #20, a 3'L hairline to light horizontal crack at the top.
Below beam #22, a 1'L section of minor scaling at the top. There is minor rust staining in this location.
Below beam #23, a 3'-10"L hairline to light horizontal crack at the top.

Item 60.2.d - Stems/Webs/Pierwalls
Pier #1
South Face
Below beam #2, minor hollow concrete just below the cap.
Between beams #3 and #4 and between beams #6 and #7, light full-height vertical cracking with minor hollow concrete and rust staining.

North Face

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REMARKS

There are previous repairs throughout. In the original concrete there are numerous small areas of minor hollow concrete. At the west end there is cracking, delamination, and moderate to heavy full-height spalling with exposed rusted rebar.

There is minor spalling and hollow concrete around this area. The hollow concrete is at the top 4' and at the bottom 6' at the west end. **See Photo #27.**

Between beams #11 and #12, small area of hollow concrete above the repairs.

Between beams #13 and #14, hollow concrete at top.

At the east end there is a minor spall at the top.

Pier #2

South Face

There is a full height repair throughout.

Between beams #17 and #18, hairline map cracking.

North Face

Between beams #20 and #21 and between beams #21 and #22, light vertical crack at the top half.

Between beams #22 and #23, area of delamination at top.

TRAFFIC SAFETY

Item 36a - Bridge Railing

AL-3 railing with concrete endposts. See Item 58.8.

Item 36b - Transitions

There is double-matted type "ss" guardrail flush-mounted to the endpost at the southwest transition. There are steel posts and spacers. The average posts spacing is 18" at the first four posts in the transition area of the approach guardrail.

There are no transitions at the southeast, northwest, and northeast approaches.

The southwest approach guardrail has been removed. **See Photo #28.**

Item 36c - Approach Guardrail

The southwest approach guardrail has been removed. **See Photo #28.**

A building abuts the endpost at the southeast approach.

There are no approach guardrails at the southeast, northwest, and northeast approaches. There are 6' high chain link fences at the northwest and northeast approaches. There is moderate rusting throughout at the northwest approach. At the first panel there is a broken section of the top rail with the fabric and top rail loose behind the endpost.

Item 36d - Approach Guardrail Ends

There are no approach guardrail ends at the southeast, northwest, and northeast approaches. The southwest approach guardrail has been removed.

Sketch / Photo Log

Sketch 1 : Location Map

Sketch 2 : Framing Plan

Photo 1 : The deck above pier #1 has moderate spalling near midspan

Photo 2 : The deck above pier #1 has heavy spalling at the east end

Photo 3 : There is typical transverse cracks with minor efflorescence in bay #8 (span #3 shown)

Photo 4 : There is typical minor to moderate surface rusting of the SIP forms (bay #3 in span #3 shown)

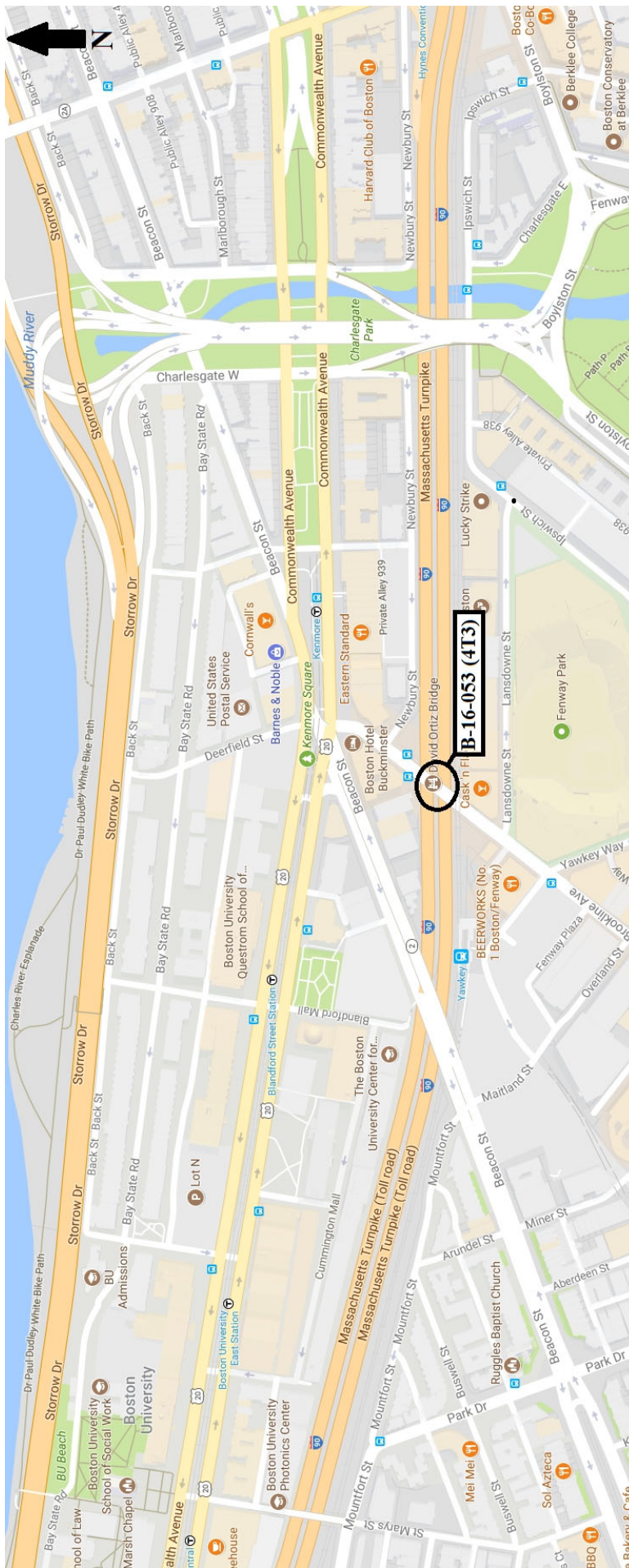
Photo 5 : Concrete patch in the west sidewalk at pier #1, small section of granite curb missing

Photo 6 : There is a section of missing joint filler and adjacent adhesion failure at the east sidewalk over the south abutment

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REMARKS				
Photo 7 :	The east sidewalk at pier #1 has concrete repair			
Photo 8 :	The north abutment joint has filler missing at the east sidewalk			
Photo 9 :	The east railing has a puncture in the top rail at post #4			
Photo 10 :	The east anti-missile fence has a hole in the fabric just north of post #24			
Photo 11 :	The concrete encased utility in bay #7 has moderate spalling with exposed rusted rebar to the bottom face over the south abutment in span #1			
Photo 12 :	The concrete encased utility in bay #7 has heavy delamination to the west face over the south abutment in span #1			
Photo 13 :	The concrete encased utility in bay #7 has moderate to heavy spalling with exposed rusted rebar to the west face over pier #1 in span #1			
Photo 14 :	The concrete encased utility in bay #7 has new timber shielding in span #2			
Photo 15 :	The concrete encased utility in bay #7 has moderate to heavy spalling with exposed rusted rebar at the top and bottom of the west face and hollow concrete on the bottom face over pier #2 in span #3			
Photo 16 :	The north approach, bituminous patching down middle of roadway			
Photo 17 :	West sidewalk and part of travel lane, closed to pedestrian and vehicle traffic due to ongoing construction at parcel 12 (Southwest approach shown)			
Photo 18 :	Northwest approach sidewalk closed to pedestrians due to ongoing construction			
Photo 19 :	Small area of 100% section loss in the bottom of the west vertical stiffener of beam #2 over pier #1			
Photo 20 :	Typical rusting of the bearings over pier #1, several with hardened concrete debris impacting the bearings (bearings #2 and #11 shown)			
Photo 21 :	The bearing for beam #10 at pier #1, span #2, is tilted up to 1" to the north			
Photo 22 :	There is minor to moderate spalling of the pedestal for beam #19 at the north abutment			
Photo 23 :	There are two moderate spalls with exposed rusted rebar at the north backwall between beams #19 and #20 (bay #1)			
Photo 24 :	There is moderate horizontal cracking, hollow concrete, and minor spalling with exposed rusted rebar at the north face of the south breastwall between beams #5 and #6			
Photo 25 :	There is moderate spalling with exposed rusted rebar and adjacent delamination and cracking to the south face of the pier #1 pier cap below beam #2 (extending to beam #4 at the top corner)			
Photo 26 :	There is moderate horizontal cracking and delamination to the top corner of the south face of the pier #1 pier cap. Between beams #5 and #6 shown			
Photo 27 :	At the west end of the pier #1 pierwall there is moderate to heavy, full height, spalling, delamination, and cracking			
Photo 28 :	Southwest approach guardrail removed			

CITY/TOWN BOSTON	B.N. 4T3	BR. DEPT. NO. B-16-053	8-STRUCTURE NO. B16053-4T3-DOT-NBI	INSPECTION DATE MAR 30, 2022
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SKETCHES



Sketch 1: Location Map

CITY/TOWN BOSTON	B.I.N. 4T3	BR. DEPT. NO. B-16-053	8.-STRUCTURE NO. B16053-4T3-DOT-NBI	INSPECTION DATE MAR 30, 2022
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PHOTOS

Photo 1: The deck above pier #1 has moderate spalling near midspan



Photo 2: The deck above pier #1 has heavy spalling at the east end

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PHOTOS

Photo 3: There is typical transverse cracks with minor efflorescence in bay #8 (span #3 shown)



Photo 4: There is typical minor to moderate surface rusting of the SIP forms (bay #3 in span #3 shown)

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PHOTOS

Photo 5: Concrete patch in the west sidewalk at pier #1, small section of granite curb missing



Photo 6: There is a section of missing joint filler and adjacent adhesion failure at the east sidewalk over the south abutment

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PHOTOS

Photo 7: The east sidewalk at pier #1 has concrete repair



Photo 8: The north abutment joint has filler missing at the east sidewalk

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PHOTOS

Photo 9: The east railing has a puncture in the top rail at post #4



Photo 10: The east anti-missile fence has a hole in the fabric just north of post #24

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PHOTOS

Photo 11: The concrete encased utility in bay #7 has moderate spalling with exposed rusted rebar to the bottom face over the south abutment in span #1



Photo 12: The concrete encased utility in bay #7 has heavy delamination to the west face over the south abutment in span #1

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PHOTOS

Photo 13: The concrete encased utility in bay #7 has moderate to heavy spalling with exposed rusted rebar to the west face over pier #1 in span #1



Photo 14: The concrete encased utility in bay #7 has new timber shielding in span #2

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PHOTOS



Photo 15: The concrete encased utility in bay #7 has moderate to heavy spalling with exposed rusted rebar at the top and bottom of the west face and hollow concrete on the bottom face over pier #2 in span #3



Photo 16: The north approach, bituminous patching down middle of roadway

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PHOTOS



Photo 17: West sidewalk and part of travel lane, closed to pedestrian and vehicle traffic due to ongoing construction at parcel 12 (Southwest approach shown)



Photo 18: Northwest approach sidewalk closed to pedestrians due to ongoing construction

CITY/TOWN BOSTON	B.I.N. 4T3	BR. DEPT. NO. B-16-053	8-STRUCTURE NO. B16053-4T3-DOT-NBI	INSPECTION DATE MAR 30, 2022
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PHOTOS

Photo 19: Small area of 100% section loss in the bottom of the west vertical stiffener of beam #2 over pier #1



Photo 20: Typical rusting of the bearings over pier #1, several with hardened concrete debris impacting the bearings (bearings #2 and #11 shown)

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PHOTOS

Photo 21: The bearing for beam #10 at pier #1, span #2, is tilted up to 1" to the north



Photo 22: There is minor to moderate spalling of the pedestal for beam #19 at the north abutment

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PHOTOS

Photo 23: There are two moderate spalls with exposed rusted rebar at the north backwall between beams #19 and #20 (bay #1)



Photo 24: There is moderate horizontal cracking, hollow concrete, and minor spalling with exposed rusted rebar at the north face of the south breastwall between beams #5 and #6

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PHOTOS

Photo 25: There is moderate spalling with exposed rusted rebar and adjacent delamination and cracking to the south face of the pier #1 pier cap below beam #2 (extending to beam #4 at the top corner)



Photo 26: There is moderate horizontal cracking and delamination to the top corner of the south face of the pier #1 pier cap. Between beams #5 and #6 shown

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PHOTOS



Photo 27: At the west end of the pier #1 pierwall there is moderate to heavy, full height, spalling, delamination, and cracking



Photo 28: Southwest approach guardrail removed

National Bridge Element Inspection

BDEPT# **B-16-053**Date **03/30/2022**B.I.N. **4T3**District Bridge Inspection Eng'r **Jerry O'Connor**Item 8 **B16053-4T3-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Mark Tetreault**Town **Boston**Team **Michael Hailu, Mohammed**District **6**Member(s) **Zeroual**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	10,776.840	<input type="checkbox"/> %	9,846.840	930.000		
Notes :									
> 1130	Cracking (RC and Other)	sq feet	2	930.000	<input type="checkbox"/> %		930.000		
Notes :									
> 510	Wearing Surfaces	sq feet	2	6,952.800	<input type="checkbox"/> %	5,902.800	1,050.000		
Notes :									
> > 3210	Del/Spall/Patch/Pot(Wear Surf)	sq feet	2	800.000	<input type="checkbox"/> %		800.000		
Notes :									
> > 3220	Crack (Wearing Surface)	sq feet	2	250.000	<input type="checkbox"/> %		250.000		
Notes :									
107	Steel Opn Girder/Beam	feet	2	1,480.000	<input type="checkbox"/> %	780.000	699.000	1.000	
Notes :									
> 1000	Corrosion	feet	2	700.000	<input type="checkbox"/> %		699.000	1.000	
Notes :									
> 515	Steel Protective Coating	sq feet	2	11,988.000	<input type="checkbox"/> %	10,588.000	900.000		500.000
Notes :									
> > 3420	Peel/Bub/Crack(Stl Protect Coat)	sq feet	2	900.000	<input type="checkbox"/> %		900.000		
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	2	500.000	<input type="checkbox"/> %				500.000
Notes :									
107	Steel Opn Girder/Beam	feet	3	270.000	<input type="checkbox"/> %		180.000	90.000	
Notes :									
> 1000	Corrosion	feet	3	270.000	<input type="checkbox"/> %		180.000	90.000	
Notes :									

National Bridge Element Inspection

BDEPT# **B-16-053**Date **03/30/2022**B.I.N. **4T3**District Bridge Inspection Eng'r **Jerry O'Connor**Item 8 **B16053-4T3-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Mark Tetreault**Town **Boston**Team **Michael Hailu, Mohammed**District **6**Member(s) **Zeroual**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 515	Steel Protective Coating	sq feet	3	2,187.000	<input type="checkbox"/> %		458.000	729.000	1,000.000
Notes :									
> > 3420	Peel/Bub/Crack(Stl Protect Coat)	sq feet	3	1,187.000	<input type="checkbox"/> %		458.000	729.000	
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	3	1,000.000	<input type="checkbox"/> %				1,000.000
Notes :									
210	Re Conc Pier Wall	feet	3	140.000	<input type="checkbox"/> %	115.000	15.000	10.000	
Notes :									
> 1080	Delamination/Spall/Patched Area	feet	3	10.000	<input type="checkbox"/> %			10.000	
Notes :									
> 1130	Cracking (RC and Other)	feet	3	15.000	<input type="checkbox"/> %		15.000		
Notes :									
215	Re Conc Abutment	feet	3	80.000	<input type="checkbox"/> %	70.000	10.000		
Notes :									
> 1080	Delamination/Spall/Patched Area	feet	3	10.000	<input type="checkbox"/> %		10.000		
Notes :									
217	Masonry Abutment	feet	3	80.000	<input type="checkbox"/> %		40.000	40.000	
Notes :									
> 1610	Mortar Breakdown (Masonry)	feet	3	80.000	<input type="checkbox"/> %		40.000	40.000	
Notes :									
234	Re Conc Pier Cap	feet	3	150.000	<input type="checkbox"/> %	75.000	30.000	45.000	
Notes :									
> 1080	Delamination/Spall/Patched Area	feet	3	45.000	<input type="checkbox"/> %			45.000	
Notes :									

National Bridge Element Inspection

BDEPT# **B-16-053**Date **03/30/2022**B.I.N. **4T3**District Bridge Inspection Eng'r **Jerry O'Connor**Item 8 **B16053-4T3-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Mark Tetreault**Town **Boston**Team Member(s) **Michael Hailu, Mohammed Zeroual**District **6**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1130	Cracking (RC and Other)	feet	3	30.000	<input type="checkbox"/> %		30.000		
Notes :									
302	Compressn Joint Seal	feet	3	160.000	<input type="checkbox"/> %	130.000		30.000	
Notes :									
> 2320	Seal Adhesion	feet	3	30.000	<input type="checkbox"/> %			30.000	
Notes :									
> 510	Wearing Surfaces	sq feet	3	60.000	<input type="checkbox"/> %	15.000	45.000		
Notes :									
> > 3220	Crack (Wearing Surface)	sq feet	3	45.000	<input type="checkbox"/> %		45.000		
Notes :									
311	Moveable Bearing	each	3	27	<input type="checkbox"/> %			27	
Notes :									
> 1000	Corrosion	each	3	27	<input type="checkbox"/> %			27	
Notes :									
> 515	Steel Protective Coating	sq feet	3	108.000	<input type="checkbox"/> %		72.000	36.000	
Notes :									
> > 3420	Peel/Bub/Crack(Stl Protect Coat)	sq feet	3	108.000	<input type="checkbox"/> %		72.000	36.000	
Notes :									
313	Fixed Bearing	each	3	27	<input type="checkbox"/> %			27	
Notes :									
> 1000	Corrosion	each	3	27	<input type="checkbox"/> %			27	
Notes :									
> 515	Steel Protective Coating	sq feet	3	108.000	<input type="checkbox"/> %		108.000		
Notes :									

National Bridge Element Inspection

BDEPT# **B-16-053**Date **03/30/2022**B.I.N. **4T3**District Bridge Inspection Eng'r **Jerry O'Connor**Item 8 **B16053-4T3-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Mark Tetreault**Town **Boston**Team **Michael Hailu, Mohammed**District **6**Member(s) **Zeroual**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> > 3420	Peel/Bub/Crack(Stl Protect Coat)	sq feet	3	108.000	<input type="checkbox"/> %		108.000		
Notes :									
330	Metal Bridge Railing	feet	2	400.000	<input type="checkbox"/> %	396.000	3.000	1.000	
Notes :									
> 7000	Damage	feet	2	4.000	<input type="checkbox"/> %		3.000	1.000	
Notes :									

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